

incentive to provide facilities-based service where feasible: profit margins for facilities-based services are more than 1.5 times those of UNE-P.²²⁹ Moreover, carriers prefer to have the direct control over their networks that their own facilities provide. “No one knows more than [MCI does] about the realities of . . . being operationally dependent on one’s chief competitor.”²³⁰ As AT&T recently stated to the Commission, although it is a significant user of UNE-P, it “has a compelling interest in utilizing its own facilities whenever and wherever it can”²³¹ The availability of UNE-P has not harmed AT&T as a facilities provider, nor has it deterred AT&T from making significant investments in local infrastructure.²³² Thus, it is clear that UNE-P does not detract from other entry modes, but rather provides an additional and essential method of entry, increasing the overall level of competition, as envisioned by the Act.²³³

2. The FCC Should Expand the Reach of UNE-P Based Competition by Lifting Restrictions on Unbundled Switching

Access to ILEC unbundled switching remains essential for CLEC provision of local service to mass market customers. As noted above, empirical evidence shows that ubiquitous local competition has begun to develop only where UNE-P is available. This is so even in major urban areas, where only negligible numbers of mass market customers who rely on analog loops are served by CLECs over the CLECs’ own facilities or over unbundled loops. The Commission now has two years of experience with the UNE-

number of customers served by a single central office.” See *NPRM* at ¶¶ 45-6.

²²⁹ *Deutsche Bank Report* at p. 16, figure 15.

²³⁰ *Huyard Speech to NARUC*.

²³¹ *AT&T Ex Parte Notice*, Petition for Reconsideration and Fourth Further Notice of Proposed Rulemaking, CC Docket No. 96-98 (April 2, 2001) at p. 2.

²³² *Id.* at pp. 1-2.

²³³ WorldCom provides further evidence below in the section on unbundled switching. As demonstrated in that discussion, the level of facilities-based and UNE loop competition is as high in states in which UNE-P is prevalent as in other states.

switching exception it carved out in the *UNE Remand Order* and that experience teaches that the exception has not had its intended effect. There has been little or no facilities-based competition for customers served by less than DS-1 capacity loops, and the exception has merely served to ensure that a group of customers are consigned to ILEC monopoly service. The exception therefore should be limited to DS-1 or higher capacity loops in the 50 largest MSAs where EELs are available.

a) Small Business and Residential Customers Cannot Be Served without Access to Unbundled Switching

In the past three years it has become clear that there are two distinct categories of telecommunications customers that typically are served by different technologies and through distinct marketing channels. On one hand, there are customers with relatively intense, often data-centric demand for telecommunications services sufficient to justify carrier and customer equipment, investment, and personnel costs associated with digital technology. These customers typically maintain at least minimal telecommunications expertise in-house and enter term contracts for telecommunications services. They are willing to invest in customer premises equipment and to bear the external and internal costs associated with labor-intensive installation and provisioning activities. And they are almost always served by DS-1 loops or even higher capacity loops because that is the architecture that best meets their needs. On the other hand, there are customers who have relatively simple needs for voice grade service and perhaps dial-up access to the Internet (or access via DSL). They are served by analog loops sometimes supplemented by DSL-based Internet access and related services. This category includes virtually all residential and small business customers.

As discussed in some detail in Section II.B, the first group of customers can, in some instances, be served efficiently by a CLEC's switch. If the customer is located in reasonable proximity to a CLEC's switch, if there are EELs available to ensure an

efficient loop-multiplexer-transport transmission path to the carrier's network, and if the customer generates sufficient traffic and commits to a term contract that provides an opportunity for the CLEC to recover its non-recurring charges and investment costs, then switch-based service can be viable. The customers are often willing to purchase such service from a CLEC despite the difficulties of coordinating installation because such coordination also is required when they purchase service from the ILEC and because they frequently add incrementally to their existing telephone services (or change carriers incrementally) and have the personnel to deal with the necessary coordination and attendant disruption.

But even within this market for intense users of telecommunications, the CLEC will not be able to serve all customers who require DS-1 service or higher. There must be a sufficient concentration of such customers to justify deployment of a CLEC switch. It is not yet clear where this concentration point is, but there is no evidence that sufficient concentration exists outside the top 50 MSAs.²³⁴ In addition, the CLEC must have access to EELs. Without access to EELs, CLECs would have to pay significant unnecessary collocation expenses and could not use loop and transport facilities as efficiently as the ILECs do to get their traffic to their own switches, making it difficult to compete.²³⁵

²³⁴ See *Determination of Prices, Terms, and Conditions of Certain Unbundled Network Elements*, Ga. PSC, Docket No. 14361-U, Direct Testimony of Joseph Gillan for Access Integrated Networks, Inc., ITC Deltacom, Inc., WorldCom, Inc. (Feb. 18, 2002) at p. 29 (*Gillan Georgia Direct*). Even if sufficient traffic existed in the 50th to 100th largest MSAs to support one or two CLECs in each of these MSAs, this would not justify extension of the UNE-switching exception to these MSAs. Without UNE-switching, other CLECs would be unable to provide service in these MSAs, reducing competitive options for customers to one or two companies. Moreover, no one CLEC would be able to provide service in all of the MSAs. As a result, no CLEC would be able to offer service to customers with multiple locations because the CLEC could not provide service at all of the customer's locations. Such multi-location customers are a key part of the business of WorldCom and other national CLECs.

²³⁵ *Gillan Georgia Direct* at pp. 29-31.

In contrast to the high-intensity digital customers that can sometimes be served economically from a CLEC's switch, switched-based mass market service remains at present an unachievable goal due to the limits of today's technology and the limited number of customers currently obtaining local service from CLECs. It is almost always prohibitively expensive to concentrate and transport the traffic of a limited number of low-intensity analog customers back to a CLEC switch. The necessary economies of scale and scope still can be achieved only by leasing ILEC facilities. Additionally, the costs of collocation and backhauling traffic to the CLEC switch alone are prohibitive.²³⁶ And even where the CLEC already has collocated to serve digital customers, the manual costs of loop provisioning are too high to serve analog customers. Whereas a customer with DS-1 service will require a single hot cut for that DS-1, a customer with multiple analog lines will require multiple hot cuts. This will increase the coordination costs for the CLEC – as well as the non-recurring charges (NRCs) the CLEC must pay to the BOC to perform the hot cuts. If and when such manual processing is replaced by electronic cross-connects, that barrier to switch-based mass market service will be removed. But that day has not come, and only if and when it does arrive, will it be possible to see whether the other formidable barriers to switch-based mass market entry can be overcome. Moreover, because customers with analog lines are much less likely to enter long term contracts than customers with DS-1 or higher service, a CLEC may have little time to recover the coordination costs and NRCs before the customer migrates to a different carrier.²³⁷

²³⁶ *Id.* at p. 23. The ILEC does not incur these costs, making it difficult for the CLEC to compete.

²³⁷ In Georgia, for example, it would take a CLEC more than 15 months to recover just the additional NRCs associated with loop provisioning as compared with UNE-P, assuming a net profit margin of 10% and revenue equal to the average revenue for switched line. *Gillan Georgia Direct* at p. 24.

Moreover, for the mass market customer, a change in carrier also needs to be seamless and painless to be worthwhile. A simple migration now is possible using the UNE-Platform, and mass market customers are showing a willingness to add DSL-based Internet access and related services when those added services do not disrupt basic POTS service. But the kind of coordinated migration necessary to provision a UNE-loop to a CLEC switch has not yet proven to be efficient and simple enough to attract mass market customers, even if it could be provided a competitive rate.

Not surprisingly then, while there are a few switch-based CLECs that claim they serve some customers who have only a few lines, none has demonstrated that it serves analog customers on anything but an occasional basis – or that it is profitably serving customers even in these instances. Because of the economic realities, WorldCom itself is not offering voice service to small business customers with analog lines even where it is collocated at the ILEC end office serving those customers.

This is not because WorldCom – or other CLECs – are serving these business customers via UNE-P. Although the margins in serving small business customers via UNE-P are higher than they are for serving residential customers, UNE-P competition for small business customers has been somewhat limited to date. This is because there has been uncertainty about the ongoing availability of UNE-P for the provision of service to small business customers (even those with fewer than four lines) – due to the Commission's failure to reach closure on a petition for reconsideration of the *UNE Remand Order* seeking to expand the switching exception to cover all business customers. Providers such as WorldCom's MCI Group have delayed serving small businesses using UNE-P. Nonetheless, facilities-based competition remains dormant.

*b) Availability of Unbundled Switching Does Not Discourage
Facilities Deployment*

The best market data available today support the proposition that very little facilities-based or UNE-loop competition exists for customers served by analog lines, and the competition that does exist is not harmed by the availability of UNE-P. The best available data are those comparing the level and robustness of competitive alternatives in those jurisdictions where there has been greater and more certain access to UNEs to those jurisdictions with more restricted and uncertain access to UNEs. Although this data does not specify the types of customers that are being served by facilities, the very low level of facilities-based or UNE-loop competition overall makes clear that few customers other than large business customers are served with facilities. The data also show that facilities-based and UNE-loop competition is not reduced as UNE-P becomes more prevalent.

In particular, in testimony submitted recently in Georgia, Joseph Gillan compared competition in Georgia, where UNE-P became available in early 2000, with competition in other BellSouth states where pricing or other issues are still precluding UNE-P entry. Georgia had higher UNE-P penetration than other BellSouth states (3.1% as compared with 1.3% elsewhere) and *also* had higher UNE-loop penetration (5% compared with 1.1% elsewhere).²³⁸ Over the course of 2001, customers served via UNE-P in Georgia increased by 143% (from 78,068 to 190,073), customers served via UNE-loops increased by 7.9% (from 80,698 to 87,082), and customers served via resale fell by 35% (from 144,398 to 93,930).²³⁹ Roughly 40% of the customers served via UNE-P were business customers.²⁴⁰ These data show that the growth of UNE-P does not lead to a decrease in

²³⁸ *Id.* at p. 9.

²³⁹ *Id.* at p. 8.

²⁴⁰ *Id.* at p. 8.

UNE-loop service. To the contrary, it increases competition for customers who previously had no competitive alternative, including many small business customers.

Mr. Gillan performed a similar analysis for competition in Texas.²⁴¹ In particular, based on Texas law, the Texas Public Utility Commission has required ILECs to make available UNE-P *without exceptions*. Mr. Gillan compared the market impact of that decision with market impact of other states' decisions to employ the FCC's restriction on UNE switching.²⁴² The results were dramatic. For the thirteen states that applied the FCC restriction, the average CLEC market share from UNE-platform was 1.2 percent (ranging from 0.4 percent to 3.8 percent), for resale was 3.4 percent (ranging from 1.8 percent to 5.1 percent) and for UNE-loop was 1.8 percent (ranging from .4 percent to 3.9 percent). By contrast, the CLEC market share from UNE-P in Texas was 13.5 percent, from resale was 3.2 percent, and from UNE-loop was 1.6 percent. These market results show that eliminating the UNE switching exception in Texas substantially increased competitive entry, but not at the expense of UNE-loop or resale entry strategies, which were almost at the same levels as in the other 12 states.²⁴³

Mr. Gillan presented Texas-only data that provided additional support for these conclusions.²⁴⁴ He compared the number of lines captured by CLECs in January 2000

²⁴¹ Public Utility Commission of Texas, *Petition of MCIMetro Access Transmission Services, LLC, Sage Telecom, Inc., Texas UNE Platform Coalition, McLeod USA Telecommunications Services, Inc., and AT&T Communications of Texas, L.P. for Arbitration with Southwestern Bell Telephone Company Under the Telecommunications Act of 1996*, Direct Testimony and Rebuttal Testimony of Joseph Gillan, on Behalf of The Texas UNE-P Coalition [Birch Telecom, ionics, Logix, nii, Talk America, TXU Communications, and Z-Tel Communications, Inc.], AT&T Communications of Texas, L.P., and McLeodUSA Telecommunications Services, Inc., Docket No. 24542 (*Gillan Texas Direct* and *Gillan Texas Rebuttal*).

²⁴² *Gillan Texas Direct* at p. 24, Table 3.

²⁴³ Similarly in New York, which never implemented the FCC's exception on provisioning of UNE-P, UNE-P penetration is far above average at 14.5% and UNE-loop penetration is also above average at 2.2%. *Gillan Georgia Direct* at p. 9.

²⁴⁴ *Gillan Texas Rebuttal* at p. 12, Table 2.

and in June 2001 by type of entry – UNE-P, UNE-loop, resale, and pure facilities-based. He found that facilities-based CLEC lines increased by somewhere between 34,079 and 114,183,²⁴⁵ CLEC UNE-loop lines increased by 94,446 (from 49,000 to 143,446), CLEC resale lines fell by 62,528 (from 347,000 to 284,472), while CLEC UNE-P lines increased by 1,062,233 (from 148,000 to 1,210,233). These data further demonstrate that UNE-P is the primary means to introduce competition into the market, but that it does not stifle pure facilities-based or UNE-loop entry. They also show that very rapid entry can best be provided by UNE-P. Based on this market evidence, the Texas Commission has just ruled that SWBT must continue to make UNE-P available to requesting carriers without restriction.²⁴⁶

While not going quite this far, the New York PSC on February 27, 2002 approved a recent settlement agreement among carriers in New York regarding the “Verizon Incentive Plan,”²⁴⁷ setting the UNE switching exception at customers with 18 lines. In earlier *ex parte* filings in this docket, several parties presented empirical evidence that the crossover to DS-1 service occurred when a customer has approximately 18 lines.²⁴⁸ Thus, the 18-line exception rule is consistent with a UNE switching exception limited to DS-1 or greater service.

²⁴⁵ There were no direct data on facilities-based lines, just on minutes. This range represents different possible assumptions on the minutes per line captured by CLECs.

²⁴⁶ That decision has been announced orally at the open meeting of the Texas PUC on March 6, 2002 (Docket No. 24542); a written decision is expected to be released in late April 2002.

²⁴⁷ *Re Verizon-NY*.

²⁴⁸ *See, e.g.,* CC Docket No. 01-338, PACE Coalition *ex parte* (May 18, 2000); AT&T *ex parte* (Oct. 11, 2000).

c) *The Commission Should Narrow the Unbundled Switching Exception*

The Commission should narrow its exception to the unbundled switching requirement. The above analysis shows that the proper delimiter for the switching exception is DS-1 service in the 50 largest MSAs, not the number of customer lines or categorization of the customer as a large or small business, provided that the ILECs are offering unconstrained access to EELs. Millions of small business customers have the same demand characteristics for voice services as residential customers, and needs that are very distinct from those of more telecommunications-intensive business customers. Customers with analog service, regardless of whether they are small business customers with five or even ten DS-0 lines, cannot be served economically via CLEC facilities. Basing the UNE switching exception on a simplistic business-residential split or the number of customer lines within specified MSAs would therefore deny many small business customers access to competitive service.

It also would lessen the mass marketing economies that CLECs need to successfully offer UNE-P-based competitive service to residential customers. Even if a subset of small business customers within these MSAs (*i.e.*, customers that have more than four lines and that are served by an end office in which a CLEC has already collocated) could viably be served using unbundled loops, including such customers in a UNE switching exception would place all small business customers in those areas off limits to a broad UNE-P mass marketing business strategy. CLECs could not mass market to small business customers in these areas because they would not know whether customers fit within the exception. That uncertainty could very well undermine the viability of the mass marketing strategy altogether.²⁴⁹

²⁴⁹ *Gillan Georgia Direct* at p. 28, n. 48.

In many areas, the cost of leasing UNEs to provide UNE-P is relatively close to the cost of retail service. Therefore, CLECs must keep internal costs very low in order to compete effectively. They can only do this by taking advantage of the economies of scale associated with the establishment of automated, end-to-end ordering and provisioning systems, standardized offerings, and mass marketing, including telemarketing. Limiting the number of customers who could be served via UNE-P by carving out geographic or other exceptions among customers served by analog lines could significantly reduce these economies of scale. The higher per-unit costs that would result if the CLEC had to recover all the fixed costs associated with mass marketing from a geographically constrained subset of customers would sometimes tip the balance against a broad-based mass market offering.

It is also important to note that any switching exception should not aggregate the service of multi-location customers. In order to serve multi-locational customers, which are the core customers for switch-based CLECs, CLECs must be able to serve all the locations of those customers, even locations where the customer does not have a DS-1 or higher service and where CLECs cannot justify deploying their own switches. If CLECs do not have guaranteed access to UNE-P to serve those locations, ILECs can make it difficult or impossible for CLECs to serve those locations competitively, either by failing to offer UNE-P, or by charging rates that are above the ILECs' own cost.

In conclusion, the evidence clearly shows that CLECs are impaired in their ability to serve customers without access to unbundled ILEC switching. The only exception may be where they are offering DS-1 or higher service to customers located in the top 50 MSAs and even then, only if the ILEC is providing unconstrained access to EELs.

D. UNEs Are Essential to Promoting Competition for Broadband Services

I. Competition Has Led to the Widespread Deployment of Advanced Services.

One of the Commission's central policy goals is the widespread deployment of advanced services.²⁵⁰ The competitive industry has been instrumental in advancing this important policy goal. As the FCC has noted, "DSL deployment began in response to the 1996 Act and the presence of competitive access providers."²⁵¹ The results are evident in the Commission's annual reports on the deployment of advanced services, each of which concludes that advanced telecommunications capability is being deployed in a reasonable and timely manner.²⁵²

All four BOCs – BellSouth, Qwest, Verizon and SBC – reported substantial growth in DSL lines in 2001 and all reported growth in data services revenues.²⁵³ The BOCs' decision to roll out DSL services aggressively is clearly motivated by the threat of

²⁵⁰ See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps To Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket 98-146, Third Report, (Feb. 6, 2002) (*Third 706 Report*) at ¶ 2; and *High Speed Services for Internet Access: Subscribership as of June 30, 2001* (Feb. 2002) (*FCC 2001 High Speed Stats*).

²⁵¹ *Third 706 Report* at ¶ 68. The incumbent LECs did not offer DSL service before the 1996 Act, and the advent of competitive data providers. Although the BOCs had DSL technology, they chose not to deploy it. Instead, the BOCs opted to offer only more expensive T-1 and fractional T-1 service to businesses, and nothing (other than dial-up) to consumers.

²⁵² *Third 706 Report* at ¶ 2 (citing First and Second 706 Reports released in 1999 and 2000).

²⁵³ See Qwest Press Release, "Qwest Communications Reports Fourth Quarter, Year-End 2001 Results," January 29, 2002 (stating that Qwest's ability to "leverage its infrastructure by offering broadband services for fast Internet connections" allowed it to achieve a 74% increase in DSL subscribers in 2001); Verizon Press Release, "Verizon Communications Reports Solid Results for Fourth Quarter, Provides Outlook for 2002," January 31, 2002; BellSouth Press Release, "BellSouth Reports Fourth Quarter Earnings," January 22, 2002; and SBC DSL Internet Updated, February 2002, available at www.sbc.com.

competition. Qwest, for example, has admitted that it is “stiff competition in the race to win high-speed Internet subscribers [that] has spurred Qwest to develop new service and price packages.”²⁵⁴

At the same time, through a strategy of relentless litigation and delay in provisioning of essential UNEs and collocation space, the BOCs were able to impede the roll-out of competitive DSL services and push the major data LECs into bankruptcy. For example, Rhythms and Covad approached SBC to obtain the UNEs necessary to provision DSL service in Texas in June 1998, however, SBC’s litigation tactics enabled it to delay the entry of both CLECs in Texas until August 1999.²⁵⁵ Meanwhile, SBC rolled out its ADSL offering in Texas in January 1999.²⁵⁶

Predictably, the collapse of the data LECs in early 2001 was followed by a steep rise in retail consumer prices for DSL, with prices increasing 25% – from \$39.95 per month to \$49.95 per month – in May 2001.²⁵⁷ Such a price increase is especially remarkable given the ILECs’ statements that deployment of fiber-fed NGDLC architectures that support DSL, which has been underway for two years, will substantially decrease their costs for providing broadband services.

Despite the BOCs’ efforts to chisel away at the foundation for competitive DSL – fair and reasonable access to UNEs – some competition still exists. While the three key

²⁵⁴ McDonald Investments, Investor Report (Sept. 18, 2001) at p. 5.

²⁵⁵ SBC’s tactics included withholding documents, for which it was fined approximately \$850,000 by the Texas Commission.

²⁵⁶ Similarly, SBC/Ameritech has resisted providing CLECs with unbundled access to its fiber-fed next generation digital loop carrier (“NGDLC”) Project Pronto architecture in Illinois by litigating and relitigating unbundling issues five different times. Illinois Commerce Commission Docket Nos. 00-0312/0313 (Arbitration Award and Arbitration Award on Rehearing) and 00-0393 (Order, Order on First Rehearing and Order on Second Rehearing).

²⁵⁷ See *Broadband Market Growth Slows*, WASH. POST, Aug. 28, 2001 at pp. E1, E10 (noting that retail DSL rates increased after DLECs, such as NorthPoint, exited the market.)

national competitive data LECs – Covad, Rhythms and NorthPoint – have suffered substantial setbacks, all or part of the network assets of all three are still being put to use in new incarnations. Covad, for example, emerged from bankruptcy in December 2001, and now owns a national DSL network covering more than 40 million homes and businesses in 94 metropolitan statistical areas.²⁵⁸ At the end of 2001, Covad had 351,000 DSL lines in service, of which 52% were business and 48% were residential lines.²⁵⁹ WorldCom acquired select DSL assets from Rhythms, and is using those assets to provide innovative competitive DSL offerings in 31 markets to businesses and ISPs, including DSL features and functions not available from the BOCs.²⁶⁰ WorldCom's DSL business model differs from that of Rhythms, however, in that WorldCom is using DSL as an access platform to connect business users with WorldCom's data network and deliver a wide range of services, including Internet access, VPNs, frame relay and ATM.²⁶¹ Similarly, when NorthPoint went bankrupt last year, AT&T purchased some of its assets²⁶² and announced that it would use those assets to provide high-speed access to AT&T's broadband services, including virtual private networks.²⁶³ In addition, a number of regional data CLECs continue to provide broadband services to residential and business customers.

²⁵⁸ Covad Communications Group, Inc. Form 10-Q for the quarterly period ended September 30, 2001 at p. 21.

²⁵⁹ Covad Press Release, "Covad Announces Fourth Quarter and Year End Operating Statistics for 2001," January 16, 2002.

²⁶⁰ *Graham Declaration* at ¶ 26-29.

²⁶¹ *See Graham Declaration*; "WorldCom Closes Rhythms Transaction," WorldCom Corporate Press Release, dated December 5, 2001.

²⁶² AT&T Press Release, "AT&T Completes Acquisition of Assets of NorthPoint Communications," May 25, 2001.

²⁶³ AT&T Press Release, "AT&T Acquires Assets of NorthPoint Communications," March 22, 2001.

Competitive DSL providers continue to play a critical role in the markets for broadband and high-speed Internet access services. WorldCom, for example, provides business-class DSL service that is configured to offer different broadband services, features and functions than the BOCs' service offerings.²⁶⁴ In addition, WorldCom provides independent ISPs with the high-speed services they need in order to compete with the BOCs' ISP affiliates.²⁶⁵ The ability of independent ISPs to obtain broadband services from competitive providers such as WorldCom is critical to competition for retail high-speed Internet access, particularly given allegations by independent ISPs that the BOCs discriminate in favor of their affiliated ISPs.²⁶⁶ Moreover, the unbundling of broadband loops will become increasingly important as all forms of communication (e.g. voice, data and video) continue to migrate to packet switched technologies, including those used for the Internet and the BOCs' fiber-fed NGDLC platforms.

The key spur to broadband deployment by incumbent LECs has been, and will continue to be, competition from competitive LECs and cable companies. The competitive LECs are particularly critical to the deployment of broadband services to customers other than residential customers, such as small and medium-sized businesses, and branch offices of larger businesses. At the same time, competitive LECs seeking to offer DSL services are dependent on incumbent LECs for all of the network elements described below, including loops, line sharing, transport and OSS. The availability of UNEs is critical to the ability of competitive LECs to offer DSL services in competition

²⁶⁴ *Graham Declaration* at ¶ 38.

²⁶⁵ *Id.* at ¶¶ 40-41.

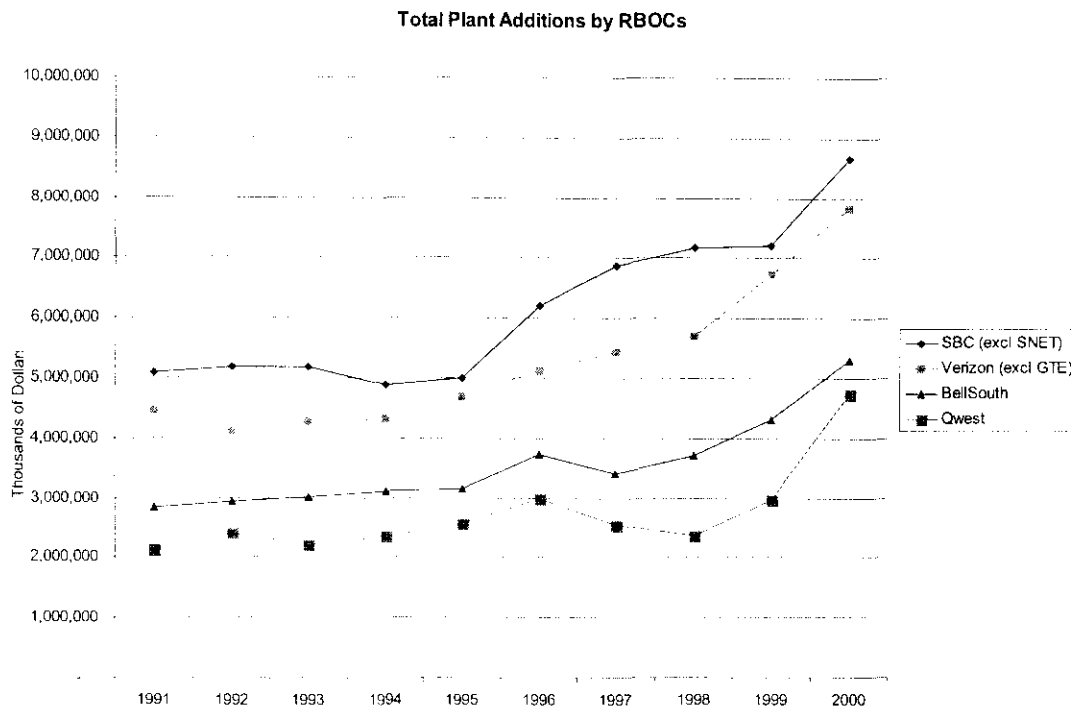
²⁶⁶ *See California ISP Association v. Pacific Bell Telephone Co.*, Case No. 01-07-027, before the California Public Utilities Commission (filed July 25, 2001); *see also In the Matter of Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities*, CC Docket No. 02-33, Notice of Proposed Rulemaking (Feb. 15, 2002 (Earthlink and other ISPs have detailed BOC practices that favor the BOCs' ISP affiliates)).

with the incumbent LECs, thereby driving investment by both competitive and incumbent LECs.

2. Unbundling Obligations Have Not Significantly Reduced Incumbent LECs' Incentives to Invest in Broadband Facilities.

The ILECs' actions belie their claims that they will curtail their investments in broadband unless advanced services are exempted from the unbundling requirements of the 1996 Act. As the graph below demonstrates, unbundling clearly has had no adverse effect on the BOCs' incentives to deploy infrastructure. The graph, which is based on ARMIS data, shows the dollar amount spent by the BOCs on plant additions since 1991. The graph illustrates that the BOCs' investment in their plant actually increased dramatically after Congress first required the BOCs to open up their local networks in 1996. Thus, it is clear that unbundling obligations have not materially harmed the BOCs' incentives to invest in their networks.²⁶⁷

²⁶⁷ See *HAI Report* at pp. 90-96 (unbundling at economic cost will not deter facilities construction by ILECs); see also *See Illinois Bell Telephone Company Proposed implementation of High Frequency Portion of Loop (HFPL)/Line Sharing Service*, 00-0393, Illinois Commerce Commission, Order On Rehearing (Sept. 26, 2001) at 30 (*Illinois Order on Rehearing*). In addition, as the Illinois Commission has pointed out, the Commission's task is not to maximize the BOCs' incentives, "weigh any potential incremental costs of unbundling against the potential benefits associated with increased innovation and competition." *Illinois Order on Rehearing* at 30 (concluding that the potential benefits of increased innovation outweigh the additional costs associated with unbundling, especially in regard to end-to-end NGDLC UNE-P).



All data is adjusted to take mergers into account

Moreover, despite the presence of unbundling obligations, the BOCs continue to roll out DSL at a rapid rate. Verizon, for example, boasts that it has deployed DSL to central offices serving 79% of all access lines in its territory,²⁶⁸ and the other BOCs have continued to invest in DSL at similar rates.²⁶⁹ For instance, in 2001, BellSouth posted an annual growth rate of 189% for its DSL service and, in early 2002, announced that broadband is available to almost 70% of BellSouth households.²⁷⁰ Qwest reported a 74%

²⁶⁸ Verizon Press Release, "Verizon Communications Reports Solid Results for Fourth Quarter, Provides Outlook for 2002," January 31, 2002. Last year, Verizon reported a 122% increase in DSL customers from 660,000 in 2000 to 1.2 million in 2001 and data transport revenue growth of 21%, with revenues exceeding \$7 billion. *Id.*

²⁶⁹ See Qwest Press Release, "Qwest Communications Reports Fourth Quarter, Year-End 2001 Results," January 29, 2002; BellSouth Press Release, "BellSouth Reports Fourth Quarter Earnings," January 22, 2002; and SBC DSL Internet Updated, February 2002, available at www.sbc.com.

²⁷⁰ BellSouth Press Release, "BellSouth Reports Fourth Quarter Earnings," January 22,

increase in DSL subscribers and DSL revenue growth of 66% for 2001.²⁷¹ SBC, due in large part to its Project Pronto deployment, has increased its DSL subscriber base from 3,000 customers in 1998 to more than 1.3 million at the end of 2001.²⁷² SBC's data revenues grew by more than \$1.3 billion in 2001 reaching a total of \$8.8 billion.²⁷³

The BOCs' threats to cut broadband investment if regulators fail to meet their demands therefore ring hollow. Instead, these threats reflect the BOCs' market power. As a Texas Public Utility Commission arbitrator found in response to SWBT's threat to curtail its broadband investment if the Texas Commission required unbundling of SWBT's Project Pronto facilities:

This position, in and of itself, provides clear and convincing evidence that SWBT continues to possess market power and can unilaterally determine who receives, and far more compelling, who does not receive broadband services. . . . [T]his . . . provides additional support that meaningful competition can only be accomplished by allowing CLECs access.²⁷⁴

There is no question that some investment in local loop facilities must be made by the ILECs to enable broadband services. In some cases, where the basic loop infrastructure must be upgraded (such as by the deployment of fiber-fed NGDLC loop

2002. BellSouth finished 2001 with 620,500 DSL customers and reported annual data revenue growth of 24.9%. *Id.*

²⁷¹ Qwest Press Release, "Qwest Communications Reports Fourth Quarter, Year-End 2001 Results," January 29, 2002. By the end of 2001, Qwest had 448,000 DSL customers. *Id.*

²⁷² SBC DSL Internet Updated, February 2002, available at www.sbc.com. SBC boasts that it is "the nation's leading DSL Internet Access Service provider" offering DSL service to more than 60% of its customers out of nearly 1400 central offices. *Id.*

²⁷³ SBC Press Release, "SBC Reports Fourth-Quarter Earnings," January 24, 2002.

²⁷⁴ *Petition of Rhythms Links, Inc. Against Southwestern Bell Telephone Company for Post-Interconnection Dispute Resolution and Arbitration Under the Telecommunications Act of 1996 Regarding Rates, Terms, Conditions and Related Arrangements for Line Sharing*, Texas PUC Docket 22469, Revised Arbitration Award (Sept. 20, 2001) at pp. 74-75 ("Texas Arbitration Award").

facilities), these investments can only be made by the ILEC, due to the large economies of scale present in the loop portion of the telecommunications network. In other cases, where existing all-copper loop facilities can be used in the provision of advanced services, CLECs are capable of making the investments in the technology needed to enable broadband access, provided that they have access to loops, collocation in ILEC wire centers at reasonable rates, and access to operations support systems and other mechanisms necessary for the efficient provisioning of service. It is clear, however, that denying CLECs the UNEs necessary to provide broadband services will result in the continued exercise of market power by the ILECs, resulting in higher prices and a slower rate of innovation to the detriment of businesses, ISPs and residential consumers.²⁷⁵

3. Competitive DSL Offerings Depend on Access to Unbundled Local Loops

It is almost impossible to overstate the benefits derived from requiring the ILECs to provide unbundled access to local loops. The loop essentially serves as both a bottleneck and a gateway that connects the end user customer to a vast number of communications networks. As discussed throughout these comments, without access to the essential "last mile" facilities controlled by the ILECs, competitors would not be able to deliver their services to end users across America.

Competitors such as WorldCom, seeking to provide their services to end users, have no real alternatives to the use of unbundled loops.²⁷⁶ Depriving competitors of access to the incumbents' local loops would therefore impair their ability to provide the services they seek to offer. WorldCom, for example, would be unable to provide broadband service using DSL or other technologies without access to unbundled loops

²⁷⁵ See *HAI Report* at p. 86.

²⁷⁶ *UNE Remand Order* at ¶ 181.

(provided using either all-copper or copper/fiber combinations) leased from the BOCs.²⁷⁷

The Commission should therefore reaffirm its findings regarding the local loop, including the definition of the loop set forth in the *UNE Remand Order*.²⁷⁸ The Commission should also clarify that that full NGDLC functionality – including DSLAM line cards at the remote terminal – falls squarely within the loop unbundling provisions of section 251(c)(3) and the Commission’s rules.

In unbundling the local loop, it is imperative that the Commission “apply the same requirements to all transmission facilities” and not “distinguish between copper [and] fiber.”²⁷⁹ A fiber-fed loop that traverses a remote terminal is still a “loop” and must be unbundled in the same manner as any other loop. As the FCC concluded only a year ago after analyzing NGDLC platforms,²⁸⁰ competitive LECs are impaired without access to the entire loop, including the fiber component.²⁸¹ Similarly, the Commission has already concluded that competitive LECs are impaired without access to subloops.²⁸²

²⁷⁷ WorldCom relies on the local loop to provide businesses with premium-grade DSL services unmatched by other providers. WorldCom’s Enterprise DSL offering allows customers with many, dispersed locations (e.g., gas stations, retail chains, etc.) to obtain high-speed access to WorldCom’s data network, enabling their employees to access applications from multiple locations. *Graham Declaration* at 10. These product offerings, along with the additional products referenced in the attached *Graham Declaration*, would not be available but for WorldCom’s access to the last mile unbundled loop.

²⁷⁸ *UNE Remand Order* at ¶¶ 162-229.

²⁷⁹ *NPRM* at ¶ 50.

²⁸⁰ As used in these comments, NGDLC refers to a fiber-fed DLC system supporting both voice and data services, with multi-Megabit data rate capability. See Joint Declaration of Tom Stumbaugh and David Reilly, provided here as Attachment D (*Stumbaugh/Reilly Declaration*) at ¶ 12-13.

²⁸¹ *In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket Nos. 98-147, 96-98, Order on Reconsideration, para. 10 (rel. January 19, 2001) (*Line Sharing Reconsideration Order*).

²⁸² *Line Sharing Reconsideration Order*, n. 13, n. 19.

The Commission should affirm these prior holdings. In doing so, the Commission should not distinguish between existing [loop] facilities and new construction. Such a distinction would be inconsistent with a statutory scheme enacted to “encourage the rapid deployment of *new communications technologies*.”²⁸³

The Commission asks whether there are “less burdensome” alternatives than the current loop unbundling rules that are consistent with the 1996 Act.²⁸⁴ There is no evidence to indicate that the current unbundling rules are “burdensome.” In fact, there is no technical difference between the BOCs’ provisioning of UNE loops to competitors and loops used to provide retail service to its end users.

a) The High Frequency Portion of the All-Copper Loop (Line Sharing & Line Splitting)

In its *Line Sharing Order*, the Commission took an important step toward accelerating the deployment of broadband services to residential and small business customers by requiring ILECs to unbundle the high-frequency portion of the local loop to enable competitors to provide voice-compatible DSL-based services over existing phone lines.²⁸⁵ After analyzing a full record amassed over nearly a year, the Commission concluded that competitors are impaired without access to the high frequency spectrum of an all-copper local loop.²⁸⁶ As explained below, the factors that the Commission relied on in reaching that decision have not changed in the months since the line sharing rules became effective.

²⁸³ Telecommunications Act of 1996 Preamble (emphasis added).

²⁸⁴ *NPRM* at ¶ 48.

²⁸⁵ *Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket Nos. 98-147, 96-98, Report and Order (Dec. 9, 1999) (*Line Sharing Order*).

²⁸⁶ *Line Sharing Order* at ¶¶ 25-61.

First, it still is not feasible for competitors to self-provision loops.²⁸⁷ Second, data providers still cannot obtain the high frequency portion of the loop from sources other than the incumbent LECs.²⁸⁸ While it is possible for data providers to partner with competitive voice providers and engage in line splitting, operational details involving such arrangements still need to be resolved.²⁸⁹ Even if such partnerships were available, however, they would not provide competitive carriers access to the vast majority of potential customers who are reachable only over the incumbent LECs' ubiquitous local loop facilities. Third, it still is not possible as a practical, operational or economic matter, for competitors to lease a second loop to provide voice compatible xDSL-based services.²⁹⁰ For example, leasing a second loop is not possible in cases in which the ILEC has only a single loop available to an end user premises.²⁹¹ In addition, as the Commission recognized in its *Line Sharing Order*, a carrier would be at a competitive disadvantage if it had to lease a second loop to provide the same type of service that the ILEC is able to provide utilizing the existing loop.²⁹² Thus, it is clear that lack of access to the high frequency spectrum of an all-copper local loop still impairs a competitor's ability to provide voice-compatible DSL service (ADSL).

i. Line Sharing

As the FCC has explained, unbundling the high frequency portion of the all-copper loop promotes competition in the telecommunications market and stimulates the deployment of advanced telecommunications capability, in furtherance of the goals of the

²⁸⁷ See *Graham Declaration* at ¶ 34; *Line Sharing Order* at ¶ 37.

²⁸⁸ See *Line Sharing Order* at ¶ 53.

²⁸⁹ *Graham Declaration* at ¶ 33.

²⁹⁰ *Line Sharing Order* at ¶ 38.

²⁹¹ *Id.* (noting that where no facilities are available, competitors are precluded from providing the services they seek to offer).

²⁹² *Id.* at ¶ 39.

1996 amendments to the Act.²⁹³ The availability of line sharing has spurred and continues to spur investment by competitors as competitive data providers have invested in and deployed new equipment in central offices across the country in order to provide line sharing. Specifically, data providers have installed, or are installing, splitters (which allow the high frequency data traffic to be separated from the low frequency voice traffic) and ADSL DSLAM equipment in every ILEC central office in which they are collocated.

WorldCom, for instance, uses line sharing to provide DSL service.²⁹⁴ It offers both ISPs and businesses various products that utilize the high-frequency spectrum of the all-copper local loop. If WorldCom and other competitive carriers are denied access to line sharing, end user customers will have no alternative to incumbent LEC-provided DSL services. Competitive providers are impaired without access to the high frequency portion of the loop as a UNE. The line sharing requirements should therefore remain in place.

ii. Line Splitting

In the *Line Sharing Reconsideration Order*, the Commission required incumbent LECs to allow competing carriers to offer both voice and data services over a single unbundled loop.²⁹⁵ As with line sharing, nothing has changed to alter the need for the Commission's line splitting rules. If anything, the need for line splitting is likely to grow as penetration by competitive voice providers increases in response to state decisions that set pricing at levels that enable effective competition for local services. Moreover, the elimination of restrictions on UNE-P for small business would clear the way for line-

²⁹³ *Id.* at ¶ 54-57. The Commission recently reiterated this point in a brief filed with the D.C. Circuit. *United States Telecom Association, et al, vs. Federal Communications Commission and United States of America*, Brief of Respondents, D.C. Circuit, Nos. 00-1012 (Sept. 14, 2001) at p. 21.

²⁹⁴ *Graham Declaration* at ¶ 31-32.

²⁹⁵ *Line Sharing Reconsideration Order* at ¶ 18.

splitting offers to businesses. Although operational details associated with line splitting must still be resolved before WorldCom can attempt line splitting with competitive voice carriers,²⁹⁶ WorldCom is anxious to resolve these operational issues so that it can serve the growing number of end users served by competitive voice providers.²⁹⁷

In response to the Commission's question regarding whether its current line-splitting rules should be changed in any way,²⁹⁸ WorldCom notes that its MCI Mass Markets Group, which provides UNE-P service, continues to be frustrated by the absence of a requirement that permits CLEC voice and ILEC DSL combinations.²⁹⁹ More and more, customers with ILEC-provided DSL are seeking to change their voice service to MCI. Because the Commission declined to require the ILECs to continue providing DSL service to customers served by voice CLECs, MCI is not able to serve this growing base of customers. The Commission's latest statistics on DSL subscribership reveal the magnitude of this problem. The BOCs had 2.7 million ADSL lines in service as of June 30, 2001.³⁰⁰ Unless the Commission amends its line splitting rules to permit CLEC voice and ILEC (or ILEC data affiliate) DSL combinations, MCI will be foreclosed from serving millions of customers who may desire voice service from MCI and DSL service from an ILEC.

b) Line Sharing over Fiber

In its *Line Sharing Reconsideration Order*, the Commission clarified that incumbent LECs have an obligation to provide line sharing over loops served in part by fiber facilities and issued a *Further Notice* on the "feasibility of different methods of

²⁹⁶ Other than a small trial in New York, WorldCom has not attempted any line splitting arrangements with competitive voice carriers.

²⁹⁷ *Graham Declaration* at ¶ 33.

²⁹⁸ *NPRM* at ¶ 54.

²⁹⁹ *Line Sharing Reconsideration Order* at ¶ 26.

³⁰⁰ *See FCC High Speed Stats* at Table 5.

providing line sharing where an incumbent LEC has deployed fiber in the loop.”³⁰¹ On February 27, 2001, Covad, Rhythms and WorldCom filed joint comments on issues relating to line sharing over fiber and requested that the FCC clarify its rules to make clear that full NGDLC functionality, including DSLAM line cards at the remote terminal, falls squarely within the loop unbundling provisions of section 251 (c)(3) and the Commission’s rules. Since WorldCom and others filed comments on this issue a year ago, nothing has changed with respect to the technical feasibility of line sharing over fiber. What has changed, however, is the magnitude of the BOCs’ deployment of fiber-fed loops capable of supporting DSL services. Since the 1980s, the loop has been evolving from copper to fiber. Thus line sharing over fiber is increasingly important.

c) Fiber-Fed Loops/SubLoops

As discussed below and in the attached *Stumbaugh/Reilly Declaration*, the BOCs are aggressively rolling out fiber-fed NGDLC loop technology that can support a variety of DSL types, including ADSL, HDSL-2 and G.shdsl. As a result, the local bottleneck is moving from the central office to the remote terminal.

The only way competitors can provide DSL service to the growing customer base served by NGDLC platforms is by gaining access to the end-to-end loop, including the electronics at the remote terminal. The FCC should therefore reaffirm its past finding that the loop is “not limited to facilities, but includes features, functions, and capabilities,”³⁰² such as electronics located at remote terminals (RTs). Alternatively, as discussed below, the FCC should find that competitors are impaired without access to the electronics that the incumbent LECs have deployed in the RTs and rule that CLECs are

³⁰¹ Third Further Notice of Proposed Rulemaking in CC Docket No. 98-147 and Sixth Further Notice of Proposed Rulemaking in CC Docket No. 96-98 (Jan. 19, 2001).

³⁰² *UNE Remand Order* at ¶ 175.

entitled to two separate UNEs: 1) the loop, which includes fiber/copper combinations; and 2) packet switched transport to and from the RT.³⁰³

i. Remote Terminals Are Fast Becoming the New Bottleneck

In the fiber-fed NGDLC architecture, remote terminals have replaced central offices as the network bottlenecks. As the Commission has already observed, “the remote terminal has, to a substantial degree, assumed the role and significance traditionally associated with the central office.”³⁰⁴ Indeed, approximately 35 percent of all access lines in the U.S. already travel through digital loop carrier (DLC) systems today and the national average is projected to increase to 50 percent by 2004.³⁰⁵ Consequently, if CLECs are restricted to offering DSL-based services using only central office-based DSLAM equipment connected to all-copper loops, they will be prevented from serving a significant portion of the market. Such a result would clearly be at odds with the underlying purpose of the Act.

³⁰³ For purposes of this pleading, “packet switched transport to and from the RT,” includes the ILEC DSLAM and associated ATM transport from the RT to the CO in addition to a port on the ILEC’s optical concentration device in the Central Office.

³⁰⁴ *UNE Remand Order* at ¶ 218; *see also DSL Anywhere*, DSL Forum at 7 (December 12, 2001), available at <http://www.ntia.doc.gov/ntiahome/broadband/comments/dslf/dsl_anywhere.pdf> (*DSL Anywhere*) (citing RHK 2000 Access Network System Market Forecast, Feb. 29, 2000).

³⁰⁵ *See Stumbaugh/Reilly Declaration* at ¶ 16. Nearly 44 percent of the total access lines in BellSouth’s territory already traverse DLC platforms. *See Optical Access: North America, Service Provider Analysis: BellSouth, Qwest, SBC, and Verizon – Deployment and Trends for DLC and PON*, RHK Telecommunications Industry Analysis (Dec. 2001) at 5 (“*Deployment and Trends for DLC and PON*”).

ii. DLC and NGDLC Platforms

Typically, NGDLC systems begin with copper cables (*i.e.*, twisted pair) running from the customer premises to a RT. The RT is, in turn, connected to the Central Office (CO) via a fiber backhaul.³⁰⁶ At the CO, the data stream terminates at an ATM switch, which some BOCs refer to as an Optical Concentration Device (OCD), and the voice circuits terminate at the Class 5 switch.

DSL signaling, however, was designed for use over an all-copper twisted-pair transmission path. Therefore, when a fiber link is inserted in the path to the subscriber, the raw DSL signal cannot propagate in its native form and additional electronics are necessary. Accordingly, in NGDLC systems, equipment with DSLAM capabilities must be placed at the RT, rather than at the CO, because that is where the copper portion of the loop begins.³⁰⁷ DSL signals are also distance sensitive. Specifically, DSL data rates are distance-limited: the closer the subscriber is to the DSLAM, the faster the DSL service.³⁰⁸ Thus, deploying DSLAM functionality in the RT closer to the subscriber, improves the speed of the service by shortening the length of the copper loop connecting the customer to the DSLAM.³⁰⁹

Demand for DSL services is increasing, and NGDLC systems allow for more subscribers (by extending the distance a subscriber can be located from the CO, thus affording even distant subscribers DSL access) and higher bit rates (by moving the DSLAM functionality closer to the subscriber). As a result, the BOCs are rolling out NGDLC systems at a blistering pace. SBC's \$6 billion NGDLC rollout ("Project

³⁰⁶ This backhaul may involve one fiber carrying both voice and data or multiple fiber strands, each dedicated exclusively to either voice or data.

³⁰⁷ See *Stumbaugh/Reilly Declaration* at ¶ 14.

³⁰⁸ See *id.* at ¶ 12.

³⁰⁹ *Id.* at ¶ 18.

Pronto”) illustrates this trend.³¹⁰ Project Pronto will allow SBC to provide DSL service to an additional 20 million customers in its 13-state territory.³¹¹ In its California territory alone, for example, SBC plans to upgrade 300 of its 750 central offices with NGDLC architecture within the next four years.³¹²

Given the pace of NGDLC rollout and the advanced services bottleneck the NGDLC architecture creates at the RT, it is imperative that the FCC clarify that its unbundling rules apply to all loops – particularly those that pass through RTs – and all of their features and functionalities, including the electronics necessary to provide DSL over fiber-fed loops.

d) No Viable Alternatives Exist for Competitors to Access Fiber-Fed Loops

i. Collocation at the Remote Terminal is Not Feasible

Remote Terminals, unlike Central Offices, generally lack adequate space to allow for collocation of traditional DSLAMs.³¹³ While CLECs continue to need the option of collocating DSLAMs at the RT,³¹⁴ this option will usually not be the most efficient or effective way to provision DSL over fiber-fed loops. The network architecture chosen by both SBC and Verizon clearly demonstrates this point: both ILECs have chosen to deploy NGDLCs with integrated DSLAM functionality rather than separate DSLAMs located at the RT. In addition, because RTs serve far fewer subscribers than COs, the

³¹⁰ See *Illinois Order on Rehearing* at 20.

³¹¹ See *Investigation into Ameritech Wisconsin's Unbundled Network Elements*, Public Service Commission of Wisconsin, Public Service Commission of Wisconsin Docket 6720-T1-161, Final Decision at 10 (March 22, 2002) (*Wisconsin Decision*).

³¹² See *Stumbaugh/Reilly Declaration* at ¶ 6.

³¹³ See *id.* at ¶ 26.

³¹⁴ In some instances, it may make economic sense for WorldCom to collocate a DSLAM at a Remote Terminal. For example, if WorldCom secured a large customer that was served off of an RT, it might be practical for WorldCom to collocate its own equipment in the RT.

cost per subscriber is considerably higher when the DSLAM is located in the RT than when it is located in the CO. The BOCs, moreover are designing and deploying NGDLC RTs so that there is no space for CLEC equipment.

The ILEC answer to the RT space problem – that CLECs procure adjacent remote terminals –is economically unworkable.³¹⁵ Land-use restrictions also pose substantial obstacles to adjacent collocation. ILECs often install Remote Terminal equipment on privately-owned premises where land-use restrictions arise from rights-of-way, easement and zoning requirements.³¹⁶ Before a CLEC can place equipment in an adjacent collocation arrangement, agreements must be secured with the landowner and permits must be obtained from local municipalities. Unlike ILECs, which have historical access based on their monopoly status, CLECs may not be able to gain authorization and permits from local municipalities and private landowners to build adjacent RTs. Imposing these requirements on CLECs will place an unacceptable burden on competition.³¹⁷

In addition, the BOCs have designed their networks in a way that raises the costs of collocating at RTs. For example, in designing Project Pronto, SBC unnecessarily elected to hard wire its Remote Terminals. As a result, even where it is otherwise technically feasible to collocate at the RT, SBC requires CLECs to pay between \$15,000 and \$30,000 per RT for “engineering controlled splices” to connect their DSLAMs to the ILEC's copper feeder facilities. These expenses render collocation at SBC's RTs economically infeasible.

The *Texas Arbitration Award* provided an illuminating discussion of SBC/SWBT's design of the RT and the problems associated with DSLAM collocation:

³¹⁵ See *Stumbaugh/Reilly Declaration* at ¶ 27.

³¹⁶ *Id.*

³¹⁷ *Id.*

[B]ecause of the way SWBT has designed Project Pronto, CLECs are in essence denied the ability to collocate DSLAMs at SWBT remote terminal (RT) sites. . . . [B]ecause SWBT chose to hard wire the RT, a CLEC may have to pay between \$15,000 and \$30,000 per remote terminal for access to the subloop. Uncontroverted evidence in this record indicates that SWBT designed the RTs in such a manner as to preclude any reasonable CLEC access to sub-loops at the RT even though vendors manufacture RTs with cross-connect functions that allow access to subloops. The simple fact that SWBT has hardwired its equipment at the RT and CLECs will be forced to pay for a work-around or to build adjacent collocation space supports a finding that SWBT cannot meet its burden to be relieved of its unbundling obligation. In sum, the evidence presented to the Arbitrators indicates that collocating a DSLAM at the remote terminal will in most cases not only prove to be uneconomical, but also technically problematic.³¹⁸

SBC's affiliate, ASI, on the other hand, can access subloops through Project Pronto at zero incremental cost. Assuming 20 RTs per CO,³¹⁹ and an average cost of \$22,500 (the average of \$15,000 and \$30,000), CLECs would need to spend \$450,000 *per central office* in unnecessary collocation costs.³²⁰

Verizon has indicated a general intent to model its system after SBC's Project Pronto.³²¹ WorldCom thus anticipates a repeat of many of the obstacles that have been encountered with SBC. Indeed, the New York Public Service Commission has already ruled that it is uneconomical for CLECs to collocate at Verizon's RTs.³²²

³¹⁸ *Texas Arbitration Award* at p. 66 (citations omitted). The Illinois Commission arrived at much the same conclusion as the Texas arbitrators. *Illinois Order on Rehearing* at 36.

³¹⁹ SBC's February 2000 submission to the FCC requesting a waiver of the merger conditions precluding it from owning OCDs and NGDLC line cards. See letter from Paul K. Mancini, SBC to Mr. Larry Strickling, FCC CC Docket No. 98-141 (Feb. 15, 2000).

³²⁰ See *Stumbaugh/Reilly Declaration* at ¶ 30.

³²¹ See Verizon California, Inc.'s opening testimony filed January 25, 2002, in CPUC Docket No. R.93-04-003/I93-04-002.

³²² New York Public Service Commission, Opinion No. 00-12, Case 00-C-0127, *Proceeding on Motion of the Commission to Examine Issues Concerning the Provision of*

ii. Use of Existing Copper is Not a Viable Option

As another alternative to unbundled access, ILECs propose that CLECs simply use existing copper loops that run alongside fiber feeder through the RTs to the customer's premises. This option is technically possible when the ILEC installs a DLC system and leaves some of the old copper loops in the ground, so that they run from the CO through the RT to the original customer.³²³

However, this alternative is not viable for two reasons. First, the potential for interference from the ILEC's RT-based service is far too great. The CLEC-transmitted copper cable signal would be significantly attenuated by the time it reached the distribution cable, where it would be joined by a very strong signal generated by the ILEC's RT-based service. Because of the difference in magnitude, the ILEC signal would drown out the CLEC signal.³²⁴

Secondly, the "existing copper loop" may no longer exist. Once fiber is installed, the ILECs typically re-use the existing copper on the feeder side of the RT to serve customers between the CO and the RT. As a result, the "old" copper loop no longer exists. Thus, the copper feeder portion of the loop is recycled so that it can be used by another customer closer to the CO and the distribution portion now connects the RT to the customer. As a result, the copper loop no longer exists but the copper is still in the ground. Because of this reality, BOCs can commit to leaving copper in the ground, while simultaneously refusing to provide CLECs with a copper loop.³²⁵ Indeed, the Public Service Commission of Wisconsin recently recognized that "Ameritech will have

Digital Subscriber Line Services, Opinion and Order Concerning Verizon's Wholesale Provision of DSL capabilities (Oct. 31, 2000) at 25 ("collocation by competitors on the terms offered by Verizon's tariff at these remote terminals is under many circumstances prohibitively costly and slow, and unlikely to be commercially viable.")

³²³ See *Stumbaugh/Reilly Declaration* at ¶ 33.

³²⁴ See *id.* at ¶ 33.

³²⁵ See *id.* at ¶ 34.

an incentive to retire or simply not maintain the copper plant because it is inefficient to maintain two loop networks simultaneously.”³²⁶

- e) *ILECs Should Either Be Required to Unbundle the End-to-End NGDLC Loop, Including All its Features, Functions, and Capabilities, or, Alternatively, to Unbundle Both the NGDLC Loop and the DSLAM.*

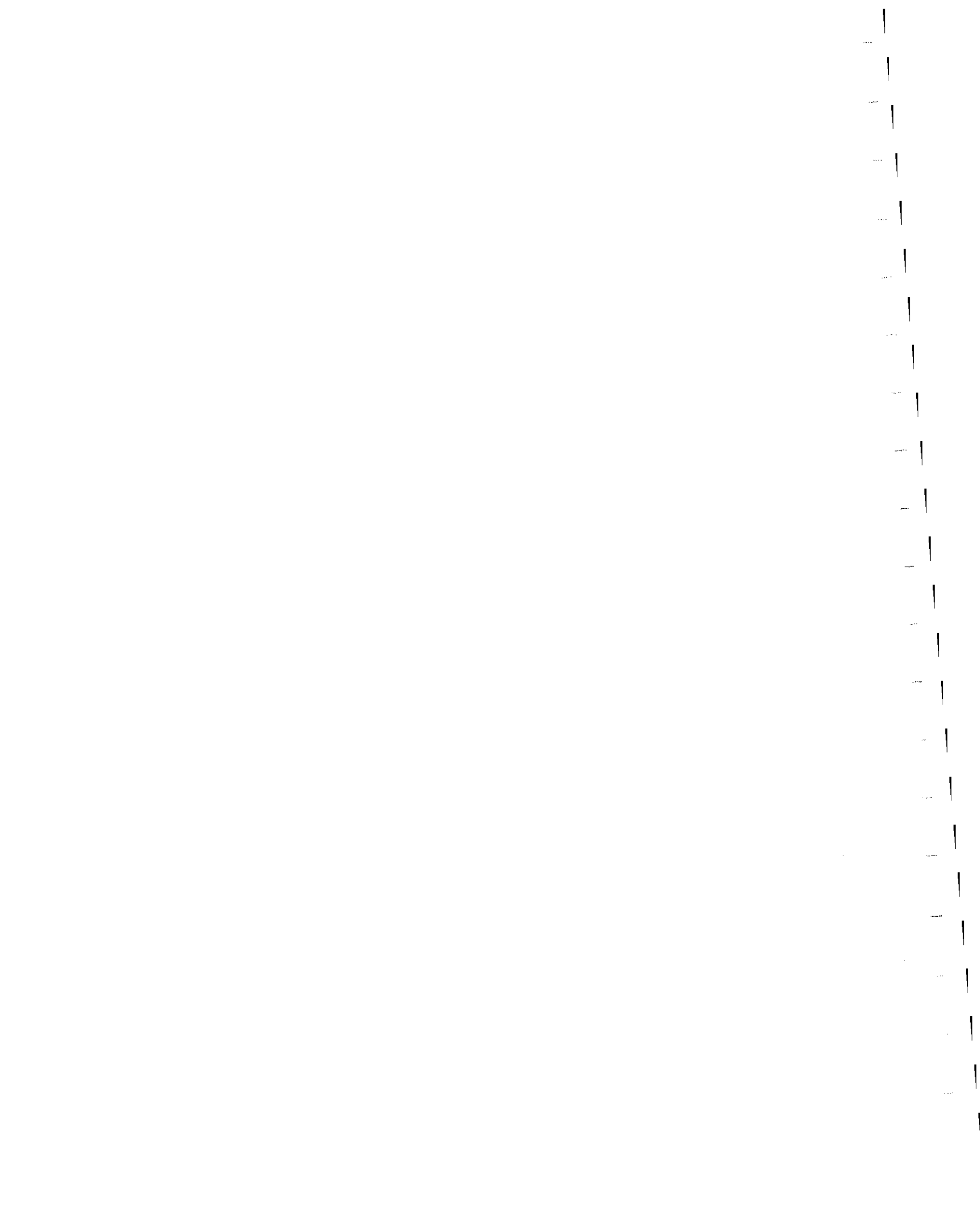
The ILECs are using the widespread rollout of NGDLC systems to frustrate competition. To guard against RTs becoming the next bottleneck, the Commission must ensure that competitors have access to the end-to-end NGDLC loop. In addition, the Commission should expressly find that the DSLAM functionalities and electronics located at the RT are encompassed within the features, functions, and capabilities of the NGDLC loop. Alternately, the Commission should find that competitors are impaired without access to the electronics that the incumbent LECs have deployed in the RTs and rule that CLECs are entitled to two separate UNEs: 1) the loop, including all NGDLC fiber/copper combinations; and 2) packet switched transport, to and from the RT.

i. ILECs should be required to Unbundle the End-to-End NGDLC Loop

The loop should remain available to CLECs as a UNE regardless of loop architecture. Otherwise, a CLECs' business plans would be dependent on the whim of the ILEC. Whether it is all copper or a fiber-copper combination, a loop is still a loop and CLECs will still be impaired without access to that loop. Texas Commission arbitrators recognized this fact in awarding CLECs access to the end-to-end NGDLC UNE Loop. As explained in the *Texas Arbitration Award*, the introduction of fiber into loop plant does not change the underlying nature of the transmission facility; “it is still a loop.”³²⁷ Acknowledging that the FCC had already determined that “CLECs are

³²⁶ *Wisconsin Decision* at p. 10.

³²⁷ *Texas Arbitration Award* at pp. 68-69 (citations omitted).



impaired without access to the unbundled loop element,” the arbitrators went on to find that, consistent with Commission precedent, “a loop is a loop, regardless of whether it is all copper or a combination of copper and fiber.”³²⁸ Thus, it is clear that the “loop” includes fiber-fed DLC platforms and that CLECs will be impaired without access to loops that are provided on such platforms.³²⁹ The Commission should now reaffirm its ruling that the subloop element includes, at a minimum, the fiber feeder between the RT and the CO and the copper loop between the RT and the customer’s premises.

ii. Remote Terminal NGDLC Functionalities and Electronics Fit Squarely Within the Commission’s Existing Definition of the Loop

The Commission has recognized that access to loops would be meaningless if competitive LECs were forced to construct parallel networks in order to gain that access.³³⁰ The Commission has also concluded that loops that pass through remote terminals include electronic capabilities – such as multiplexing – that are integral to the functioning of the loop, and thus fit within the definition of the loop.³³¹ The remote terminal electronics thus are part of the loop itself – they are “features, functions, and capabilities” of the loop and fall squarely within the incumbent LECs’ unbundling obligations. Therefore, the Commission should now reevaluate its decision to exclude DSLAM functionalities from the loop definition, in the face of rapid incumbent LEC deployment of NGDLC architectures.

³²⁸ *Texas Arbitration Award* at pp. 68-69 (citations omitted).

³²⁹ Although the BOCs have argued that unbundling will undermine their incentives to deploy NGDLC platforms, experience shows that this argument is completely without merit. *See* discussion above, *infra* at § III.D.2.

³³⁰ 47 U.S.C. § 251(c); *see also Local Competition Order* at ¶ 366.

³³¹ *UNE Remand Order* at ¶ 175 (including attached electronics [other than DSLAMs] within the definition of a “loop.”).

When it excluded DSLAM functionalities from the incumbents' unbundling obligations, the Commission envisioned that both incumbent LECs and competitive LECs would install their own DSLAMs at the remote terminal and access all NGDLC functionalities through that DSLAM. At the same time, the FCC recognized that the linchpin of such functionality would be the ability to offer the "same level of quality for advanced services."³³² The Commission therefore ruled that if competitive LECs could not deploy DSLAMs, incumbent LECs would have to provide DSLAM functionality in remote terminals, and that "the incumbent will be relieved of this unbundling obligation only if it permits a requesting carrier to collocate its DSLAM in the incumbent's remote terminal, on the same terms and conditions that apply to its own DSLAM."³³³ It is now clear, however, that it is impractical for CLECs to install their own DSLAMs at RTs. As discussed in detail above, and as several state commissions have recognized, it is prohibitively expensive for competitive carriers to collocate DSLAMs at the RT. Consequently, the Commission should revisit its prior decision in the *UNE Remand Order* and require the ILECs to unbundle the functionalities of their RT-based DSLAMs, whether the ILEC uses a separate DSLAM or integrates DSLAM functionality into its NGDLC equipment, as part of the local loop.

As the Commission has already recognized, the DSLAM functionality is an integral part of the functionality of NGDLCs currently being deployed by incumbent LECs. The Commission should further clarify that access to DSLAM functionalities includes access to the DSLAM line card. Indeed, granting competitive LECs access to every functionality in the NGDLC *except* the DSLAM line card is a hollow gesture. As the Commission concluded in the *Project Pronto Order*:

³³² *Id.* at ¶ 313.

³³³ *Id.*

An NGDLC system typically contains several “channel bank assemblies,” which are multiplexers used to provide service to end users. In each channel bank assembly, a carrier “plugs in” cards that are used to provide specific telecommunications services. . . . The ADLU Card is a plug-in card used to provide ADSL service from an NGDLC system. The ADLU Card works in conjunction with other plug-in cards and software to provide such service.³³⁴

A carrier seeking to provide competitive DSL service through an NGDLC will not be able to access the end user if it does not have access to the DSLAM line card, or, for ADSL, the ADLU. As discussed further below, the Commission could not have intended such an outcome to result from its DSLAM carve-out in the *UNE Remand Order*. As the Commission recognized a year later in the *Project Pronto Order*, “the plug-in ADLU Card is an indispensable component for providing ADSL service through the manufacturer’s NGDLC system; without the plug-in ADLU Card in the NGDLC system, a carrier would have to collocate other equipment (e.g., a DSLAM) in the remote terminal to provide DSL service to consumers served by such remote terminals.”³³⁵ Clearly, technology is changing, and the Commission’s prior view that a competitive LEC could simply collocate a DSLAM in a remote terminal and access all of the features, functions, and capabilities of the loop by means of that collocated DSLAM has been shown to be infeasible.

The Commission must, as it promised to do, reevaluate its rules in the face of these technological changes. Specifically, the Commission should confirm that remote terminal electronics are inherent features, functions, and capabilities of the loop. As a result, incumbent LECs should be required, pursuant to section 251(c)(3) of the Act, to

³³⁴ *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Ameritech Corporation, Transferor, to SBC Communications, Inc., Transferee*, Second Memorandum and Order, 15 FCC Rcd 17521 (Sept. 8, 2000) at ¶ 4 note 11 (*Project Pronto Order*).

³³⁵ *Project Pronto Order* at ¶ 14.

provide unbundled access to all remote terminal functionalities of the loop, including all DSLAM electronics and the functionalities therein.

In addition, the Commission should make clear that the software and other OSS that manages the remote terminal functionalities must be available as integral parts of the loop. Without access to those capabilities, requesting carriers will be unable to manage their customer's particular services.

iii. Alternatively, the Commission Should Find that CLECs Are Impaired Without Access to ILEC RT-Based DSLAMs

In the *UNE Remand Order*, the Commission required incumbent LECs to unbundled packet switching (DSLAMs) only under certain circumstances.³³⁶ In the *NPRM*, the Commission seeks comment on whether it should retain this carve-out and, if so, whether it should modify the requirement or the existing definition for this network element.³³⁷ As demonstrated earlier, collocation at the RT is not feasible and existing copper loops are not a viable substitute for access to NGDLC loops. Thus, if the Commission declines to define the loop to include all its features, functions, and capabilities, including DSLAM functionalities, it is essential that CLECs instead be afforded unbundled access to packet switching to and from RT, which includes ILEC DSLAMs. Under this alternative proposal, the Commission should dispose of the four exceptions required to gain access to packet switching,³³⁸ and replace them with a carve-out expressly applicable to "RT-based DSLAMs." As discussed below, this is wholly consistent with the underlying reasoning for the four conditions contained in the *UNE Remand Order*.

³³⁶ See *UNE Remand Order* at ¶ 313. This rule is referred to as the DSLAM or packet switching carve-out and is codified at 47 C.F.R. § 51.319(c)(5).

³³⁷ *NPRM* at ¶ 61.

³³⁸ We note that, in any event, the Texas Arbitrators found that RT-based DSLAMs do meet the exceptions. See *Texas Arbitration Award* at p. 70.

In the *UNE Remand Order*, the Commission required packet switching to be unbundled “in locations where the incumbent has deployed digital loop carrier (DLC) systems.”³³⁹ The FCC reasoned that, “[i]n this situation, and where no spare copper facilities are available, competitors are effectively precluded altogether from offering xDSL service if they do not have access to unbundled packet switching....”³⁴⁰ Accordingly, the Commission ruled that incumbent LECs must provide requesting carriers with access to unbundled packet switching in situations in which the incumbent has placed a DSLAM in a remote terminal, noting that the incumbent will be relieved of this unbundling obligation “only if it permits a requesting carrier to collocate its DSLAM in the incumbent’s remote terminal, on the same terms and conditions that apply to its own DSLAM.”³⁴¹

The DSLAM carve-out was constructed originally for RT-based DSLAMs. The carve-out requires packet switching to be unbundled only when each of the following four conditions are met:

- (i) The incumbent LEC has deployed DLC systems or any other system in which fiber optic facilities replace copper facilities in the distribution section;
- (ii) There are no spare copper loops capable of supporting xDSL services the requesting carrier seeks to offer;
- (iii) The incumbent LEC has not permitted a requesting carrier to deploy a DSLAM in the remote terminal or other interconnection point, and the requesting carrier has not obtained a virtual collocation arrangement at the subloop interconnection points; and
- (iv) The incumbent LEC has deployed packet switching capability for its own use.³⁴²

³³⁹ *UNE Remand Order* at ¶ 313.

³⁴⁰ *Id.*

³⁴¹ *Id.*

³⁴² 47 C.F.R. § 51.319(c)(5); *UNE Remand Order* at ¶ 313.

Clearly conditions (i) and (iv) are easily satisfied, since NGDLC platforms are, by definition, “digital loop carrier system[s],” involving packet switching (i.e., the RT-based DSLAM) the ILEC has deployed “for its own use.” However, condition (ii) is meaningless in the context of NGDLC. As shown above, existing “spare” copper loops, left in the ground after ILECs deploy DLCs, are not a viable alternative to unbundled access to the RT-based DSLAM. In addition, CLECs will be denied access to those customers that could be served from an RT-based DSLAM, but that are too far away for CO-based service. Thus, these “spare loops” are not capable of supporting xDSL services that competitive carriers seek to offer.

Condition (iii) is also meaningless because RT-collocation, as a practical matter is not economically feasible. Moreover, there is evidence that the BOCs have designed their RTs in such a way so as to preclude CLEC access.³⁴³ This is tantamount to “not permit[ting] a requesting carrier to deploy a [DSLAM] ... in the remote terminal.” As a result, RT-based DSLAMs should be made available to requesting carriers.

E. Specific UNEs Not Covered Above

1. NID and Inside Wire

Competitive local exchange companies (CLECs) will be impaired in their ability to provide financially viable competitive local service unless they retain the ability to gain access to the network interface device (NID)³⁴⁴ and ILEC inside wire in a building.³⁴⁵ Access to these unbundled network elements is critical due to the delays and discrimination CLECs have encountered gaining access to multiple tenant environments (MTEs) via facilities-based strategies. As discussed above, MTE owners regularly

³⁴³ See *Texas Arbitration Award* at 66.

³⁴⁴ 47 C.F.R. § 51.319(b).

³⁴⁵ 47 C.F.R. § 51.319(a)(2)(1).

impose unreasonably high entry rates on CLECs compared to ILECs and fail to negotiate with CLECs access requests on a timely basis. Consequently, CLEC access to the ILEC's NID and/or intrabuilding wire is often the only means by which a CLEC can quickly offer service to customers located in MTEs.

CLECs need access to the NID as an unbundled element when using an ILEC unbundled loop to a single demarcation point, either at a single premise unit or at an MTE where the owner has established a single minimum point of entry (MPOE).³⁴⁶ It would be prohibitively expensive for a CLEC leasing unbundled ILEC loops to single unit premises to dispatch technicians to each unit to install a new NID, and it would be wasteful to impose on new entrants the costs both of disconnecting loops and NIDs that are normally combined in ILEC networks and of installing new and unnecessary NIDs. Where an MTE owner has not established a single MPOE, the wire between the NID and the customer's premise often belongs to the ILEC. CLECs leasing unbundled loops also require access to this intrabuilding wire in order to bring service to the end user.

2. Signaling Networks and Call-Related Databases

There is no basis for reversing or altering the Commission's determination in the *UNE Remand Order* that requesting carriers would be impaired without access to ILECs' signaling networks and call-related databases.³⁴⁷

a) *Signaling Networks.*

Signaling networks are an essential component of today's telecommunications networks. Signaling networks transmit routing messages between switches and between switches and call-related databases.³⁴⁸ Signaling links enable a switch to send queries to call-related databases, which provide the switch with customer information or

³⁴⁶ 47 C.F.R. § 68.105.

³⁴⁷ *UNE Remand Order* at ¶¶ 383, 402, 433. See 47 C.F.R. §§ 51.319(e), (g).

³⁴⁸ Declaration of Bernard Ku, provided here as Attachment E (*Ku Declaration*) at ¶ 3.